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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,547	03/23/2004	Chiaki Aoyama	IIP-115-A	2570
21828 7590 12/13/2007 CARRIER BLACKMAN AND ASSOCIATES 24101 NOVI ROAD SUITE 100 NOVI, MI 48375			EXAMINER RASHID, DAVID	
			ART UNIT 2624	PAPER NUMBER
			NOTIFICATION DATE 12/13/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/806,547	Applicant(s) AOYAMA, CHIAKI	
	Examiner David P. Rashid	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7 and 10-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 10-12 is/are allowed.
- 6) ☒ Claim(s) 2-5,7,13 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

All of the examiner's suggestions presented herein below have been assumed for examination purposes, unless otherwise noted.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/12/2007 has been entered.

Amendments

2. This office action is responsive to the claim and specification amendment received on 11/12/2007. **Claims 1 – 6, 7, and 10 – 14** remain pending; **claims 6 and 8 – 9** are withdrawn; **claims 12 – 14** are new.

Claim Rejections - 35 USC § 101

3. In response to applicant's claim § 101 rejection amendments and remarks received on 1/12/2007, the previous claim § 101 rejections are withdrawn.

Claim Rejections - 35 USC § 112

4. In response to applicant's claim § 112 rejection amendments and remarks received on 1/12/2007, the previous claim § 112 rejections are withdrawn.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 2-3, 5, 7 and 13-14** are rejected under 35 U.S.C. 102(b) as being anticipated by Tanabata et al. (2002/0196422 A1).

Regarding **claim 2**, Tanabata discloses a method for measuring a position of an object (FIG. 1, paragraph [0028]) with a combination of an image of the object captured by a camera unit (FIG. 1, FIG. 10A, element 200) and calibration information (FIG. 9), the calibration information being prepared in advance in such a manner that a position of a measurement pixel of the image is correlated with a direction of an incident beam of light (dashed lines in FIG. 1;

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FIG. 1, element 350; paragraph [0042], FIG. 9, FIG. 10) and a displacement from a reference point to the incident beam (FIG. 10, element d), the method comprising the steps of:

- (a) incorporating the image (FIG. 1, elements 310, 330);
- (b) detecting a position of a pixel representative of the object in the image incorporated at step (a) (FIG. 10B, elements 52a, 52b, d); and
- (c) calculating the position of the object according to the direction and the displacement of the incident beam (FIG. 1, element 350; paragraph [0041]), which are obtained from the calibration information with reference to the position of the pixel detected at step (b) (FIG. 9, paragraph [0042]) and
- (d) wherein the calibration information further calculates displacement of the incident beam of light relative to an optical center of the lens of the camera unit (paragraph [054] where element 122a of FIG. 2A represents the optical center of the lens that is “relative” to the calculated displacements).

Regarding **claim 3**, Tanabata discloses an apparatus for measuring a position of an object (FIG. 1, paragraph [0028]) according to an image of the object captured by a camera unit (FIG. 1, element 310; FIG. 10A, element 200), the apparatus comprising:

- an image input means (FIG. 1, elements 310, 330) for incorporating the image;
- a pixel position detection means (FIG. 10B, elements 52a, 52b, d) for detecting a position of a pixel representative of the object in the image incorporated by the image input means;
- a storage means (FIG. 1, element 350; paragraph [0042]) for storing calibration information which correlates the position of the pixel with both a direction of an incident beam

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of light originating from the object (FIG. 9, y-axis) and a displacement from a reference point to the incident beam (FIG. 9, x-axis); and

a position calculation means (FIG. 1, element 350) for calculating the position of the object according to the direction (FIG. 10A shows varying horizontal positions to the fixed camera 200) and the displacement of the incident beam (paragraph [0041]), which are derived from the calibration information with reference to the position of the pixel detected by the pixel position detection means (“interpolation calculation” in paragraph [0049]);

wherein said displacement of the incident beam indicates discrepancy of the incident beam of light penetrating a lens system (FIG. 1, element 210) of the camera unit relative to the optical center of the lens system (paragraph [054] where element 122a of FIG. 2A represents the optical center of the lens that is “relative” to the calculated displacements).

Regarding **claim 5**, Tanabata discloses the apparatus according to claim 3, wherein the pixel position detection means (FIG. 10B, elements 52a, 52b, d) detects the position of the pixel representative of the object (paragraph [0044]) have a marker (FIG. 10A, element 51; FIG. 10B, element 52) identifying a typical spot of the object.

Regarding **claim 7**, claim 2 recites identical features as in the computer program for a computer used for an apparatus of claim 7 (paragraph [0039]). Thus, references/arguments equivalent to those presented above for claim 2 is equally applicable to claim 7, including wherein said incident beam of light (dashed lines in FIG. 1) is directly projected (the direction of the dashed arrow in FIG. 1 which is the incident beam of light shows the direction of the incident beam of light from the object to the lens system) from the object (FIG. 1, paragraph [0028]) to a lens system (FIG. 1, element 210) of the camera unit (FIG. 1, FIG. 10A, element 200);

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and wherein said reference point is an optical center of the lens system (then center of lens 210 in FIG. 1 is the optical center).

Regarding **claim 13**, Tanabata discloses a method according to claim 2, wherein the camera unit (FIG. 1, element 200) is adapted (the camera unit is “adapted” to be positioned on an automobile since it is capable of being placed on top of an automobile it is hence “adapted”) to be positioned on an automobile.

Regarding **claim 14**, claim 13 recites identical features as in claim 14. Thus, references/arguments equivalent to those presented above for claim 13 are equally applicable to claim 14.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination between Tanabata et al. (2002/0196422 A1) and Day et al. (US 4,639,878 A).

Regarding **claim 4**, while Tanabata discloses the apparatus according to claim 3, Tanabata does not teach wherein the camera unit comprises cameras in sets of at least two so as to take a plurality of images and the storage means stores the calibration information for each camera.

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Day discloses a system for automatically determining the position and attitude of an object (FIG. 3) wherein the camera unit comprises cameras in sets of at least two (FIG. 3, element 26) so as to take a plurality of images (Col. 6, lines 65 - 66) and the storage means (FIG. 3, element 42) stores the calibration information for each camera (Col. 8, lines 20 - 24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the apparatus of Tanabata to include the camera unit comprising cameras in sets of at least two so as to take a plurality of images as taught by Day "...for automatically determining the position and attitude of a three-dimensional body...", Day, Col. 3, lines 66 - 68 and the storage means storing the calibration information for each camera as taught by Day for the computer 40 to access the information from the mass storage 42 for calculation purposes.

Allowable Subject Matter

9. **Claims 1 and 10-12** allowed.

10. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, while the prior art discloses elements within the method for measuring a position of an object according to an image of the object captured by a camera unit, the prior art does not teach (i) calculating a discrepancy being the minimum distance between the optical center of the lens system and the incident beam of light penetrating the lens system, (ii) wherein the incident beam of light is directly projected from the object to the lens system (iii) to compensate the position of the object according the discrepancy.

The prior art of record instead teaches an incident beam of light that is directly projected from the lens system to the object, and my beam of light projected from the lens system to the

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object would be instead reflected/refracted and not incident. Calculating a discrepancy that is a minimum distance between the optical center and the incident beam of light penetrating the lens systems also requires prior knowledge of the optical center position within the lens system that the prior art does not use to compensate the position of the object.

Response to Arguments

11. Applicant's arguments filed on 11/12/2007 with respect to **claims 2-5 and 7** have been respectfully and fully considered, but they are not found persuasive.

Summary of Remarks regarding claims 2-3, 5 and 7:

Applicant argues that Tanabata's method fails to disclose that the incident beam of light is directly projected from the object to the lens system of the camera unit as required by the amended claims. Rather, Tanabata's method teaches that the incident beam of light is projected from the object to the lens system through a mask (*@ response page 23*).

Examiner's Response regarding claims 2-3, 5 and 7:

Regarding claims 2-3 and 5, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "[an] incident beam of light [that] is directly projected from the object to the lens system of the camera unit") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding claims 2-3 and 5, applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without

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specifically pointing out how the language of the claims patentably distinguishes them from the references.

Regarding claim 7, Tanabata discloses wherein said incident beam of light (dashed lines in FIG. 1) is directly projected (the direction of the dashed arrow in FIG. 1 which is the incident beam of light shows the direction of the incident beam of light from the object to the lens system) from the object (FIG. 1, paragraph [0028]) to a lens system (FIG. 1, element 210) of the camera unit (FIG. 1, FIG. 10A, element 200).

Summary of Remarks regarding claim 4:

Applicant argues by traversing such rejection and submits that the rejection is overcome and that claim 4 is patentably distinct over the applied references for the reasons stated in relation to claim 3 and further because whether considered singly or in combination thereof, the applied references fail to make the claimed invention obvious (*@ response page 24*).

Examiner's Response regarding claim 4:

However as shown above, claim 3 is anticipated by Tanabata and thus claim 4 by dependency is not allowable at least for these reasons. Whether considered singly or in combination thereof, the applied references make the claimed invention obvious.

12. Applicant's arguments filed on 11/12/2007 with respect to **claims 1 and 10-12** have been respectfully and fully considered, and found persuasive.

Summary of Remarks regarding claims 1 and 10-12:

Applicant respectfully submits that Taniguchi fails to disclose calculating a discrepancy of an incident beam of light penetrating a lens system of the camera unit relative to an optical center of the lens system; and compensating the position of the object according to the discrepancy. Rather, Taniguchi discloses aligning the reticle and/or wafer via a XY-stage for aligning the projection of the image (based on refracted light) formed on reticle with that of the pattern image formed on the substrate (*@ response page 20*).

Examiner's Response regarding claims 1 and 10-12:

Applicant's arguments with respect to claims 1 and 10-12 have been fully considered and are persuasive. The rejection of Taniguchi has been withdrawn, and the claims now found allowable for the reasons listed in Section 10 of the Office Action.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David P. Rashid whose telephone number is (571) 270-1578. The examiner can normally be reached Monday - Friday 8:30 - 17:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David P. Rashid/
Examiner, Art Unit 2624

David P Rashid
Examiner
Art Unit 2624

YOSEF KASSA
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read 'Yosef Kassa', written over the printed name and title.